DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-001087
Date Inspected: 19-Dec-2007

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 900
OSM Departure Time: 1530
Location: Shanghai, China

CWI Name: See Below

Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**CWI Present:**	☑ Yes	☐ No	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
				Approved WPS:	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Tower Fabrication

Summary of Items Observed:

Caltrans Quality Assurance (QA) Inspector, Mr. Paul Dawson, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. The QA Inspector observed the following:

CWI Names: Huang Wei, Sha Zhi, Sun Wei, Wang Nan

Orthotropic Box Girder (OBG) and Tower Mock Up:

ZPMC Test Lab:

American Bridge Weld Engineer Mr. Craig Knops informed the QA Inspector ZPMC has completed side bent testing and tensile testing of procedure qualification test (PQR) HP2007518, HP2007519 and HP2007520 and that the side bend specimens and microetch specimens are visually acceptable. Mr. Knops said Charpy testing will take place once the test pieces are cooled to a temperature of -30°C. Mr. Knops said ZPMC has an automated Charpy testing machine and that he has confirmed all of the Charpy test coupons are the proper size and the notches are the correct depth. The QA Inspector observed testing of the Charpy coupons and following random visual inspections of the side bends and microetch samples the QA Inspector assigned lot number B63-081-07 to PQR HP2007518, lot number B63-082-07 to HP2007519 and lot number B63-083-07 to PQR HP2007520.

Bay 3:

The QA Inspector observed ZPMC welder Mr. Li Meng Qian stencil 54460 is using welding procedure specification WPS-345-FCAW-1G(1F)-Repair to make a critical weld repair BCWR-008 of the base material in OBG side plate 035 adjacent to weld SP035-01-009. The QA Inspector observed a flux cored welding current of approximately 280 amps 29.0 volts, E71 T1 1.4 mm diameter electrodes and the base material had been preheated to a minimum of 60° C. The QA Inspector observed the copy of the WPS that ZPMC QC CWI Inspector Mr. Sun Wei has at the work site has been stamped by Caltrans Engineering as "Not Approved". The QA Inspector asked Mr. Wei if he is aware that this procedure has not been approved for use on this project and Mr. Wei said he had not realized this "Not Approved" stamp and no additional welding will be performed until an acceptable welding procedure is obtained. Items observed by the QA Inspector do not appear to fully comply with project specifications.

The QA Inspector observed ZPMC welder Ms. Gu Ciahong is using welding procedure specification WPS-B-T-2221-B-L2C-S-1 to make submerged arc groove weld on side plate 36 weld SP036-001-011. The QA Inspector observed a welding current of approximately 530 amps, 30.0 volts, a travel speed of 400 mm per minute, and the base material had been preheated to a minimum of 60° C. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Wu Zhibin stencil 49004 is using welding procedure specification WPS-B-T-2221-B-L2C-S-1 to make submerged arc groove weld on side plate 13 weld SP013-001-001. The QA Inspector observed a welding current of approximately 510 amps, 31.0 volts, a travel speed of 500 mm per minute, and the base material had been preheated to a minimum of 60° C. Items observed by the QA Inspector appear to comply with project specifications.

Bay 2:

The QA Inspector observed ZPMC welder Mr. Du Henshua stencil 37779 is using welding procedure WPS-B-T-4312-TC-4P-2 to make shielded metal partial penetration arc welds on MUB-MA21 weld B/J4. The QA Inspector observed arc E7018 5.0 mm diameter electrodes and a welding current of approximately 210 amps and a minimum base material preheat temperature of 160° C. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Fu Janjie stencil 66268 is using welding procedure WPS-B-T-4312-TC-4P-2 to make shielded metal arc partial penetration groove welds on MUB-MA21 weld B/J1. The QA Inspector observed arc E7018 5.0 mm diameter electrodes and a welding current of approximately 220 amps and a minimum base material preheat temperature of 160° C. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Tan Xiangbo stencil 66489 is using welding procedure WPS-B-T-4312-TC-4P-2 to make shielded metal arc partial penetration groove welds on MUB-MA21 weld B/J2. The QA Inspector observed arc E7018 5.0 mm diameter electrodes and a welding current of approximately 235 amps and a minimum base material preheat temperature of 160° C. Items observed by the QA Inspector appear to comply with project specifications.

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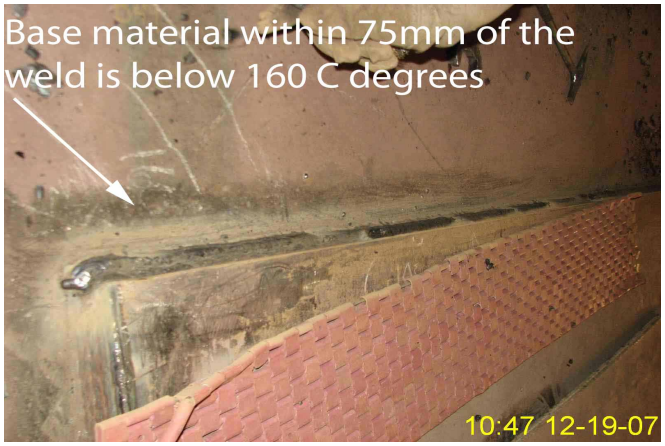
The QA Inspector observed ZPMC welder Mr. Ge Hong stencil 37780 is using welding procedure WPS-B-T-4312-TC-4P-2 to make shielded metal arc partial penetration groove welds on MUB-MA21 weld B/J3. The QA Inspector observed arc E7018 5.0 mm diameter electrodes and a welding current of approximately 210 amps and a minimum base material preheat temperature of 160° C. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Wu Zhibin stencil 49004 is using welding procedure WPS-B-T-4312-TC-4P-2 to make shielded metal partial penetration arc welds on MUB-MA21 weld B/J1. As the QA Inspector arrived in the area of the welding ZPMC Quality Control Inspector Mr. Zheng Xu Liang used a 160° C temperature indicating crayon to measure the base material adjacent to where Mr. Zhibin was welding and Mr. Liang stopped the welding of this joint due to the base material being at a temperature below 160° C. The QA Inspector observed weld #1 and weld #3 where ZPMC personnel are welding both have base material below the minimum temperature requirement of 160° C. American Bridge representatives Mr. Craig Knops, and Mr. David Larue both observed the base material was below the minimum temperature. The QA Inspector informed ZPMC QC CWI Mr. Sha Zhi that weld #1 and weld #3 both have low base material preheat temperatures. Mr. Sha Zhi said the weld had originally been near the maximum interpass temperature and now the weld is too cool, and no additional welding will be performed until the proper preheat is reestablished. Caltrans QA Task Leader Mr. James Cochran was appraised of this welding with inadequate preheat and after discussion with Mr. Sha Zhi it was decided that at this time no nonconformance report is to be issued. Mr. Zhi was informed a nonconformance report may be issued if additional violations of the welding requirements are observed.



Summary of Conversations:

See above for summary of conversations.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By: Dawson,Paul Quality Assurance Inspector

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Reviewed By: Cochran,Jim QA Reviewer